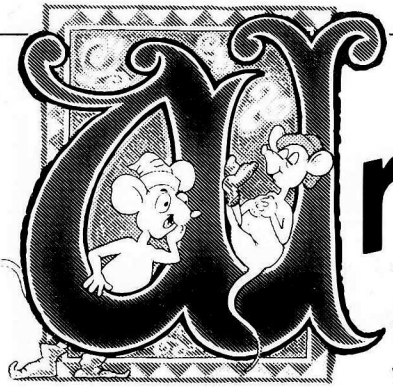
RM User

Volume 6:3
July1991

The magazine of the RM User Group

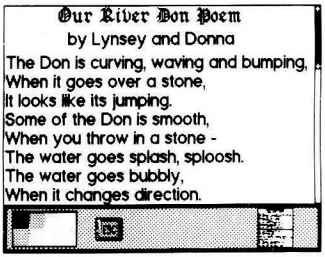


rite On!

The word processor that grows up with your pupils.

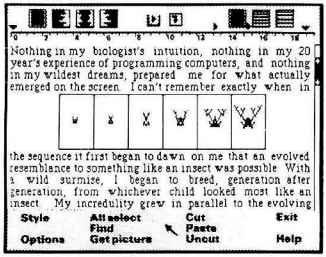
A revolutionary new word processor from SPA – in full colour! Choose exactly how you want *WriteOn* to appear. Beginners can use a very simple screen; more confident pupils can have access to *WriteOn's* advanced features step by step. And pupils can include PaintSpa or NewSPAper pictures into their documents.

For the beginner . . .


Our River Don Poem
by Lynsey and Donna
The Don is curving, waving and bumping,
When it goes over a stone,
It looks like its jumping.
Some of the Don is smooth,
When you throw in a stone -
The water goes splash, sploosh.
The water goes bubbly,
When it changes direction.

- Full *WYSIWYG* word processing
- Simple, uncluttered screen
- Choice of easy-to-read typefaces
- Type in colour or black and white
- Print out with a single key combination

For more advanced users . . .


Nothing in my biologist's intuition, nothing in my 20 year's experience of programming computers, and nothing in my wildest dreams, prepared me for what actually emerged on the screen. I can't remember exactly when in
the sequence it first began to dawn on me that an evolved resemblance to something like an insect was possible. With a wild surmise, I began to breed, generation after generation, from whichever child looked most like an insect. My incredulity grew in parallel to the evolving
Style
All select
Cut
Exit
Find
Paste
Options
Get picture
Uncut
Help

- Variable margins and tab stops
- Formatting ruler display
- Include page breaks and footers
- Easy-to-use foreign accents
- Short cuts with function or CTRL keys

Nimbus or IBM £39 + VAT Nimbus network or IBM site licence £109 + VAT
(IBM requires colour EGA graphics)

SPA

PO BOX 59, Leamington Spa,
Warwickshire CV31 3QA
Telephone (0926) 422959 FAX (0926) 422148

Help Line

According to the constitution the User Group exists *to promote the interchange of information and ideas between users of [RM] microcomputers.* There are two main ways in which this can happen. One of these is by using the magazine as a forum in which letters, articles or just short thoughts can be expressed and shared with other members. The other, and the more immediate, is to use the help line.

The User Group contains a great body of expertise and the Help Line exists as a channel for spreading knowledge and especially answers to your problems.

How does this differ from RM's Customer Support telephone service? Firstly, you can telephone the User Group members in the evening or at weekends when RM is shut (and, of course, you are just bound to hit problems). Secondly, RM don't claim to have great knowledge of products which they don't produce such as Excel or PageMaker. They can tell you how to install the packages on their equipment and how to get started but they cannot be expected to give you in depth support on using the the packages. We, on the other hand, can. Most of the people whose phone numbers are listed on page 42 are using the contents of the educational software library on a daily basis. We may have met exactly the problem you have just encountered.

If you are in difficulty, please feel free to ring anybody on the Committee; John and Helen Williams have an answering machine so you can always leave a message there. It is a great help if you are having a problem doing something using your computer if you can be next to it when you phone because it may then be possible to talk you through a solution over the phone.

If your problem is not urgent, or you think it may be difficult to explain over the phone, then do please write to the Editor with your query. I will either reply to you directly or pass your query on to a better person to solve it or publish your letter in the next magazine as a request for help.

If you have had a problem which you have solved for yourself then please share your knowledge; your solution is quite likely to be useful to someone else, even if you think it is trivial; remember that many of our members are new to using RM equipment.

Finally, you can also telephone Keith Whiddon on 0403 217339 regarding Nimbus problems or Tim Philips on 0284 706233 regarding PC186 or 380z problems. Both numbers are home numbers and we are grateful to Keith adn Tim for allowing their numbers to be published.

Contents

Help Line 3
News and Editorial 5
Two Printers for the Price of One 10
Your CONFIG.SYS and AUTOEXEC.BAT 12
ANSI Escape Sequences 24
Microsoft Works 32
Hints and Tips 34
Editorial Stop Press 37
The Discovery of the Mathematics Textbook 38
Writing for the Magazine 40
Membership Form 41
Committee Members 42

Advertisements

Software Production Associates 2
Micro Mart 30
LTS 22
MSM 43
Cumana 44

Deadlines for the next issues

RM User 6:4 ..... 20 September 1991
RM User 6:5 ..... 15 November 1991
RM User 6:6 ..... 13 January 1992

News and Editorial

Windows 3 for the RM networks is finally here. I feel as if I've said that before! Depending on whom you ask at RM Windows 3 and Net 3.1 are released now or perhaps very soon or perhaps even ages ago. I know I've got it on order and it hasn't yet arrived. RM have spent a lot of time and effort on improving their delivery service; it's now possible to send an order and receive it within a week for any small item and even computers don't take much longer but they still don't seem able to give firm dates for releases of software. To be fair, they're not much worse than other companies; the term vapourware applies to the products of some very large software producers. I'm sure Net 3.1 is worth waiting for but I just don't want to wait too long because I (in common with most other network managers thinking of upgrading) want to get it all set up and working before the new term starts.

I mentioned copyright and licensing in the last issue. RM have further clarified the position regarding the use of the Educational Software Library on machines which are not connected to the network with the following statement:

It is permissible to disconnect a station from a network that may have the bundled Microsoft and/or Superbase applications on the local hard disc. This station may then be used in another location, for example, at home, in another part of the school or on a field trip. It is not permissible to copy the licensed software for use on a personal computer other than an RM Net Network station, or to copy the software that is permanently used in the home. Any station disconnected in such a fashion, must still be counted as one of the 16 stations licensed as part of the network agreement.

That seems clear and fair enough!

One of the applications in the new software library is Excel version 3. I've mentioned this before and I have been trying out a working model of the product. (The working model is available free direct from Microsoft or from me if you send me two high density discs; it won't run on a PC186 so there's no point in trying to pack it onto low desnity discs). Microsoft now have working models of a number of products and they are a very good idea. The Excel model comes without the help file but with a number of demonstration sheets. It can work with files which are restricted in size (to about 16x16 I think) but otherwise it is the full application - it loads, saves and prints as you would expect. It is very easy to use; the button bar at the top looks like the ribbon in Word for Windows and is just as useful.

 © RM User Group 1991

A huge range of charts is available (but you need to decide if you really want some of them!) including a facility to use pictures in your bar charts. (Draw a picture in Paintbrush and copy it to the clipboard. Swap to Excel, select the bar by clicking on it and then paste the picture) The size of the picture is determined by the number in the sheet to which it refers. You can also control click on points on a chart and drag them to a different size; the numbers in the sheet change to reflect what you do!

Once upon a time Lotus 1-2-3 was widely regarded as the best spreadsheet; it was certainly the most widely used. Lotus seem to have let Windows drift past until it's almost too late but they are finally releasing Windows products. I went to a very flash presentation last week where 1-2-3 for Windows was shown, along with Ami Pro version 2 and Lotus Freelance for Windows. 123 seems good (it uses what Lotus call Smart Icons; remarkably similar to the buttons in Excel. I wonder if Microsoft will sue Lotus for infringing the look and feel of their product?). Spreadsheets are now at the point where almost any of them will do the jobs that most people need. You really make your choice on availability and price. A number of people at the meeting were saying that they had always used 1-2-3 but the Windows version was so late coming that they had switched to Excel and they did not know if they would now change back. A further difference between the two products is price. The list price for both is about the same but Microsoft have excellent discounts for education users. Lotus have run a scheme where the previous release of their products is available at a reasonable price but not the most up-to-date. This always seems short sighted. Word Perfect Corporation made Word Perfect available to American students at extremely low cost in the belief that those students would eventually go to work in places where they would influence buying decisions. This is presumably part of the reason why Word Perfect is the world's best selling word processor. Microsoft seem to be taking the same line and I wish them success!

Ami Pro is a very impressive word processor although I don't know that it offers that much more than Word for Windows. If you are not an education user (and, therefore, have to pay the full price) then probably either product will do the job. Ami offers the facility (like PageMaker) to edit the text at a number of different magnifications and this is certainly useful. It uses the same smart icons as 1-2-3 (the difference between these and the ribbon in Word is that you can choose which buttons are shown and where they are on the screen. You can also add your own buttons if the ones you want aren't there. This means that you can put any command, not just formatting ones, at a mouse click away). My only niggle about Ami has nothing really to do with the product. Lotus are also giving away a working model; except it doesn't. To be precise, you can type anything you want but you can't save it.

This means that you can't have a fiddle with it, save what you've done and then come back later. This, to me, means that it's useless. I want to try things over a period of time and come back and look later and this won't let me!

Freelance is the product you need if you have to do lots of presentations. It takes, for example, a word processed outline and some graphics and makes very impressive slides and handouts. It looked easy to use (but then it's the job of the demonstrator to make it look easy) and certainly has a massive selection of functions.

Lotus are trying hard to market the idea that not only does Windows allow the integration of applications but also of users across a network. To this end, Lotus Notes and cc:Mail allow notes to be added to any file and mailed to another user. It's analogous to sticking a yellow PostIt note on a piece of paper and sending it through internal mail but much more efficient. The example used in the demonstration involved one person preparing the report using Freelance and picking up information provided by others using 1-2-3 and Ami. It certainly seems a good idea and I'm sure it has value in any establishment which spends time shuffling round stacks of paper. My only worry is that instead of stacks of paper you just end up needing bigger and bigger hard discs. (As an aside, Elonex are advertising a file server which can take up to 10 hard discs; if you put 330Mb in each of these that gives a fair bit of storage)

I've been sent a demonstration of Grammatik. This is a grammar checker which looks good and has certainly received excellent reviews. It takes a file from most word processors (including Word) and searches not just for spelling mistakes but errors of grammar and style. The demo makes the product look good and a Windows version is available "real soon now". Details and disc from Reference Software International at 25 Cambridge Park, Wanstead, London, E11 2PU; tel: 081 518 8640.

Question Mark Computing have reduced the price of their Question Mark software to schools. The new price is just £98, down from £149. Details on 071 284 3999.

 © RM User Group 1991

Computer Associates, whose best known product is SuperCalc, have just announced an excellent software deal for education. Already, they have the cheapest full function spreadsheet (SuperCalc5 is just £79) but they have now released a package comprising SuperCalc5, SuperDB (a database), EasyWriterII, Cricket Graph, Cricket Presents and Super Project for £478. This price allows you to make as many copies of the software as you want for use in the school or outside, provided that it is used on school computers. This seems like an excellent deal; I haven't had a chance to look at any of the software yet so I can't say whether it is worth having (it's no good getting software, however cheap, if it won't do the job you want) but I'll let you know if I find out more. Details from Computer Associates at 183-187 Bath Road, Slough, Berkshire, SL1 4AA; Tel: 0753 77733.

Spreadsheets are definitely in the news at the moment! Borland have just released Quattro Pro version 3. This does lots of exciting things but I'm afraid it sounds like a stop gap until Quattro for Windows is launched soon. Details on 0734 320022.

The Centre for World Development Education has sent me details of a program called the Water Game. It is designed to give children in the 8-13 year age range a better understanding of the problems of self sufficiency in water. After several days staying at a country cottage and making decisions the computer produces a report on the consequences of their decisions. The package is available for all Nimbuses at £17 from CWDE, Regent's College, Inner Circle, Regent's Park, London NW1 4NS; Tel: 071 487 7410.

Now whinge corner! There is now a lot of educational software available for the Nimbus computer but much of it is poorly converted BBC programs. I know that many people don't want to use "educational" programs, preferring to just use real, business type programs but I think there is a place for both. The trouble is, I want the educational programs to work. I do appreciate that it costs money to write programs but surely if a program is being versioned for the Nimbus it wouldn't be too hard to add an option to the menus to allow you to end the program tidily? How many times have you found pupils resetting the machine because they're in a BBC Basic program and can't find a way out? I'll not name names to moan at just yet but compliments are due to Sherston Software. I've received more than one comment that their software is well produced and does finish tidily etc.

A short item that should have gone in Hints and Tips (but I've run out of space!) I had a phone call from someone whose server apparently started properly but no stations would boot from it. Eventually we sorted out that the station address of the server had been accidentally changed. The station address of the server needs to be 128 (as a default). The boot server address on a server is irrelevant. If you get this wrong then nothing works! If you can it is worth taking a printout of the summary screens of XCONFIG and XSETUP so that if anything ever does go wrong then you can check against these pages.

I'm moving! The addresses shown at the back of the magazine are from August so you can still contact me in Newcastle until then.

Finally, apologies if this magazine has too much technical detail. It started off as a small issue, probably with a light hearted feel, appropriate for the summer but somehow it grew and changed totally in character. Please let me know if you find it to be too deep or irrelevant and I won't do an issue like this again.

See also the Stop Press Section on Page 37

Micro Mart

For sale:

Two RML 380z 56k twin double density drives, HRG boards, colour monitors; with WordStar, Word, Quest-D, Nelcal Advanced Maths 1, 2 and 3 (Exponential & Log Functions; Calculus & Relative Motion; Momemtum & Impulse), Smile - the first 31, Oxfordshire Write, Txed and Zasm Z80 Assembler v3.0

Any sensible offer welcome. Buyer to collect or arrange carriage. The only condition is that the software is not for sale without the hardware.

Please contact: Mr V M Murray or Mr A Cordeaux, The Wallington High School for Boys, Croydon Road, Wallington Surrey, SM6 7JP;
Tel: 081 647 2235

TWO PRINTERS FOR THE PRICE OF ONE

Stewart R Bondi

Each server on our network has a single, good quality, 24-pin dot-matrix printer connected to LPT1. This printer provides all text and graphics printing for all network users on that server. The problem is that large graphic print jobs can seriously impare server performance. While printing a PCGLOBE map, for example, the server has to divide time between serving users and sending packages of data to the printer.

To solve this problem I have in fact offered two printers from each server, both connected to LPT1. In Netman, under Network Options: Printer Details, I have two named printers both connected to LPT1. So, for example, EPSON2 is the first printer offered under Public Options for all users. This is my primary printer, used for all text print output. EPSON2 is active. In Netman I have also made available EPSON1, and specific users or groups are offered this printer instead of EPSON2. In NETWORK OPTIONS: Additional Offers, in the right hand fields, I have included the statement: PAUSE EPSON1. If there is no room for this statement, it can be added to the GENERAL.SHR file, that is ordinarily a zero byte length file. This means that all print jobs for EPSON1 are automatically paused. At an appropriate time, such as lunch-hours and after school, I "PAUSE EPSON2" and "CONTinue EPSON1". This avoids any conflict between two queues trying to access a single printer connected to a single port at the server. I am still stuck with a single queue which will be processed in order. The division between two printers simulates two queues, although in reality I still have one. My numbering system is based on even numbers for text and uneven for graphics, so on another server I would offer EPSON3 for graphics and EPSON4 for text. I use unique names because there are occasions when I access one server's printer from another server, and I want to have a clear idea of the physical location of each printer.

ENHANCING SERVER FUNCTION KEY ACTIONS

My next problem is that I have 3 servers, offering in effect 6 printers, each with a unique name. I easily get confused as to which keyboard and which printer I should be pausing. To help I have assigned additional functions to the server function keyboard. These lines are added at the start of the server boot-disk AUTOEXEC.BAT file. The string values in quotation marks are appropriate, and where applicable unique, to each server. The 13p sequence is used for an automatic carriage return. The rem statements can be removed and altered as appropriate, as can the assigned string statements, to better suit your own requirements.

The commands to reassign the key functions are started by an escape character: (^[(ASCII 27), ^[is shown in WORD as a left arrow, followed by a [ ).

Be sure to backup the server AUTOEXEC.BAT file before you try these suggestions out. To generate these lines you can most easily obtain the escape character by using EDLIN or STEED, both are descibed after the following example, which is presented in the format shown by WORD (having generated this character in a text editor you can later use the copy or glossary function in a word processor to replicate it - N.B. the normal ALT number keyboard method to generate ASCII characters will not work for ASCII 27 when using most word processors):

Listing of insert lines for server autoexec.bat file to reassign function keys.

```
rem F4 generates WHO followed by a carriage return.
echo ^[0;62;"who";13p

rem F5 generates STATUS followed by a carriage return.
echo ^[0;63;"status";13p

rem F6 generates SHARE followed by a carriage return.
echo ^[0;64;"share";13p

rem ALT-F1 generates PRINT OFF followed by a carriage return.
echo ^[0;104;"print off";13p

rem ALT-F2 generates PRINT RESTART followed by a carriage return.
echo ^[0;105;"print restart";13p

rem ALT-F3 generates PRINT ON followed by a carriage return.
echo ^[0;106;"print on";13p

rem ALT-F4 generates PAUSE EPSON2 (text printer)
rem followed by a carriage return.
echo ^[0;107;"pause epson2";13p

rem ALT-F5 generates CONT EPSON2 followed by a carriage return.
echo ^[0;108;"cont epson2";13p

rem ALT-F6 generates PAUSE EPSON1(graphics printer)
rem followed by a carriage return.
echo ^[0;109;"pause epson1";13p

rem ALT-F7 generates CONT EPSON1 followed by a carriage return.
echo ^[0;110;"cont epson1";13p

rem ALT-F8 generates PRINT NEXT PQ with no carriage return.
echo ^[0;111;"print next pq"p

rem ALT-F9 generates PRINT LAST PQ with no carriage return.
echo ^[0;112;"print last pq"p
```

 © RM User Group 1991

EDLIN is MS-DOS's very own text editor, but it is not very good, its one strength is its ability to enter the Escape character from the keyboard. I will not attempt to detail the use of EDLIN here, beyond a single example. Simply, to include an escape in an EDLIN file, type CTRL-V (hold down the Control key and then press the V key) and then a left bracket. This will appear on the screen as ^V[. When you edit the file a second time, however, you'll see ^[[listed for the Escape character.

Example:

At the system prompt type:

EDLIN EXAMPLE.BAT

The following will appear on the screen:

New file

*

To insert the lines of this batch file, press "I" and then type each line as required (each line is shown by a number, a colon and an asterisk and should be finished with a carriage return) as shown below:

1:*@ECHO OFF

2:*REM F5 generates STATUS followed by a carriage return.

3:*ECHO ^V[[0;63;"status";13p

4:*^C

CTRL-C is typed to finish entering lines. You will be returned to the * prompt. Typing 1P produces a listing of the file. E will save your file

A listing of this file will appear as follows:

1:*@ECHO OFF

2:*REM F5 generates STATUS followed by a carriage return.

3:*ECHO ^[[0;63;"status";13p

You may be happier using STEED, a text editor supplied by RM in their main software bundle. Load steed, either opening a new file, or working on a copy of the AUTOEXEC.BAT file to alter. On a network station I would simply type *steed newfile.ext* or *steed autoexec.bat*, and once in insert mode, type in the lines as above. In this case entering the ESCAPE character couldn't be easier: you simply press the ESC key and a $ symbol appears for the escape character. So my first line might be:

```
echo $[0;62;"who";13p
```

You can abort editing in STEED by pressing F9, type ac and press escape twice. To save changes, press F9, type ex and press esacpe twice.

If either text edited file is later listed by WORD, you will see a left arrow and a square bracket instead of ^[[in EDLIN or $[in STEED.

I hope this article will be of value, if you experience any problems, or find faults with my suggestions, please give me a ring on (0392) 54336.

Stewart may be contacted at St. Thomas High School, Hatherleigh Road, Exeter, Devon, EX2 9JU

All the echo sequences above are examples of the ANSI escape sequences; they can be used to changet the appearance of the screen as well as the way in which the keyboard works. For more information on this, see the article on Page 24.

Your CONFIG.SYS and AUTOEXEC.BAT

Barry Simon

Introduction

During the startup of an IBM or IBM compatible computer, the operating system looks for two files of user supplied commands which allow you to customize your system in various ways. This article will attempt to explain some of the options available to you when you make these basic files. While I have written it for the relative novice, I hope it may provide some useful new tricks even to the more experienced user.

These two files, whose names must be CONFIG.SYS and AUTOEXEC.BAT, should reside in the root directory of your boot disc or of your hard disc if you have a bootable hard disc (i.e. if you can start your system from your hard disc without placing a disc in drive A).

When you turn on your computer, the CPU is setup to begin a program in the ROM (read only memory) that all IBM compatible machines have. This ROM is distinct from and in addition to the working RAM (random access memory). RAM is cleared whenever you turn off your machine or reboot while the ROM is permanently burned in and should not change.

Booting Up

The program that is automatically run from ROM begins with a brief test (POST="power on self test") of various components of your computer. If you have an M-series machine, the most noticeable part is the memory (RAM) test accompanied by counting up the memory on your screen as the test progresses. This test is much shorter when you do a warm reboot by hitting Ctrl-Alt-Del. You may also notice your drives and printer "burping" as they get tested.

The program then searches first drive A and then a hard disc if you have a bootable hard disc for a disc or disc program to transfer control to (or the network if yours is a network machine). It transfers control to the very first sector on the disc which is called the boot sector (the boot request across the network has the effect of asking for a "boot sector"). When you format a disc, a little program is placed in the boot sector which will display the message "non system disc, replace and hit any key" (a PC186 keeps looking for an operating system; you do not have to press a key). When you transfer the operating system to the disc with the SYS command or via FORMAT/S, this boot sector program is changed to transfer control to a program which must be in the position immediately following the boot sector.

 © *RM User Group 1991*

If the disc has the system on it, control is transferred successively to two hidden files which load the BIOS ("basic input/output system" part of which is in ROM) and the DOS ("Disc operating system"). When most users think of DOS they think of the familiar DIR and COPY commands. These parts of the DOS are only loaded later; the part in the hidden file involves services provided by DOS to programmers rather than directly to users. The two hidden files are called IBMBIO.COM and IBMDOS.COM on M-series machines and IO.SYS and MSDOS.SYS on PC186s

After the second hidden file is mainly loaded, it looks for a special file called CONFIG.SYS and processes the commands in it. Then control is passed to the third file in the operating system, COMMAND.COM. As the final step in booting up, COMMAND.COM looks for a file named AUTOEXEC.BAT and if found it loads it and runs it. If not found, COMMAND.COM exits with the DATE and TIME commands. (If the last line of CONFIG.SYS is SHELL=xxx.yyy then the program called xxx.yyy is loaded instead of COMMAND.COM; this is how the network starts with the familiar blue screen. NETLINK is run instead of COMMAND.COM)

Except for its special status as a bootup file, the AUTOEXEC.BAT file is an ordinary BATch file with the usual rules of syntax. The CONFIG.SYS file has a special syntax with a limited number of allowed commands. Both must be pure ASCII files, that is without any special formatting codes that some word processors add. Many word processors which have special codes have a "non-document" mode for preparing ASCII files. These files have separate lines which must be ended with carriage return/line feed pairs. If you have any doubts about whether the file is "pure ASCII" you can use the TYPE command to display it on the screen and see if it just has ordinary letters and numbers.

Device drivers

There are a group of programs which are made permanently resident and which are loaded as part of the CONFIG.SYS. Virtually any resident program can be produced in this format but certain ones must be of this form. Typically, console drivers and any program which controls "a device" must be loaded now. Most ram discs or other disc drivers (e.g. for CDROM) are also loaded as device drivers. While device drivers are programs, they need not have the extension "com" or "exe". In fact, so far as I can tell their extension can be anything that you wish. Nevertheless virtually all commercially available device drivers have the extension "sys". The syntax for loading a device driver in your CONFIG.SYS is

```
device=<path><name><parameters>
```

so if you have a device foo.sys in the directory \sys of drive C: and it will take a numeric parameter to set the size of some buffer, you might load it with

```
device=C:\sys\foo.sys 128
```

Note that it is essential to include the extension "sys" or else you will get an error message "bad or missing foo". The question of which parameters a given device driver allows or whether it allows any at all depends on the driver and should be dealt with in the documentation for the program in question. For the drivers ANSI.SYS and VDISC.SYS which come with DOS, I note that the former takes no parameters while the later takes parameters explained in the DOS manual. DOS 3.2 comes with a third driver called DRIVER.SYS while some versions of MSDOS 3.2 comes with an alternate ram disc called RAMDRIVE.SYS. Both take parameters.

Examples of Device Drivers: the default drivers

I will not attempt to describe all available device drivers since there are so many. On a Nimbus PC186 the drivers most commonly loaded are RAMDISK.SYS and PARALLEL.SYS which respectively set up a silicon disc if you have 1.5Mb of memory and set up the low cost parallel port. On an M-series machine there are many several drivers loaded to allow the PC186 emulation. You actually don't need any of these drivers if you **only** want to run as a standard IBM.

The hidden file IBMDOS (MSDOS) sets up several devices even if you have no CONFIG.SYS: con, prn, aux, lpt1, lpt2, lpt3, com1, com2. Con, short for console is a combined keyboard/monitor device, prn for printer is by default a name for lpt1 and aux a name for com1. LPTn and COMn are names for the parallel and serial ports on the computer. These device names are assigned even if you don't have the full complement of ports.

Examples of Device Drivers: Console Drivers

The most common device driver to install is a console driver which replaces the default console driver and may implement the escape sequences of the 1977 console standard of the American National Standards Institute (ANSI). These sequences include ways of controlling colors, cursor position and some DOS level keyboard macros. One console driver of this type called ANSI.SYS is supplied with DOS and takes about 2K of resident memory. It does not address the speed of display issue but it does implement several ANSI escape sequences. The default setup of the Nimbus computer means that you don't need to load ANSI.SYS (and RM don't supply it!) but on an M-series machine you must load the default set of drivers.

Examples of Device Drivers:Other drivers

If you have a Lotus/Intel/Microsoft EMS board or AST EEMS board, you will need to load a device driver to access this expanded memory. Often the command will require various parameters to specify the amount of memory being set aside and various items like the region of conventional memory used for swapping and the port number to use. Be warned if you are setting up a CONFIG.SYS file for the first time that you may already have a CONFIG.SYS file which was made for you when you installed the EMS software that came with your board. Since this likely has the correct parameters, you should make your own CONFIG.SYS file by starting with this one and continuing from there.

SMARTDRV.SYS is a disc caching utility which loads as a device driver. It is designed to co-operate with Windows in its use of memory and can dramatically speed up disc access.

The Microsoft Mouse requires software to install it so your system will recognize the mouse. The mouse comes with two versions of this software: MOUSE.SYS which is loaded as a device driver in your CONFIG.SYS and MOUSE.COM which is loaded later, typically in your AUTOEXEC.BAT. (Note that the PC186 has a mouse driver built into the firmware and does not need any special program running; if you find that the mouse doesn't appear to work with some software then check that it is enabled by using the CONFIG program. Some IBM programs look for MOUSE.COM when they start; RM provide a dummy version of this with the SETPC program).

As you may know you can place remarks in your BATch files and in particular in your AUTOEXEC.BAT. This is useful if you want to temporarily run your system without some resident program that is usually loaded in your AUTOEXEC.BAT file. You need only "remark it out", i.e. add the phrase "REM " at the beginning of the line including it. You can't really use REMs in CONFIG.SYS files on a PC186 but if you insert the word "REM" at the start of a line in your CONFIG.SYS file you will get the message Unrecognized command in CONFIG.SYS. However, since the rest of the line is not acted on, this procedure will have the desired effect of "commenting out" the line in question so you should not hesitate to use it. With DOS 4 (as used on the M-series machines) REM is allowed.

The FILES command

DOS is a prisoner of its past. Original IBM PC's came with only 16K of memory (!) so when DOS boots up it sets aside memory for various purposes in an incredibly frugal manner. The defaults for three regions of memory set aside for file handles, disc buffers and environment are woefully inadequate. If you know what you are doing, it is easy to change these defaults but it's unfortunate that the novice gets stuck with these small values. In any event, FILES and BUFFER commands are among the most important for you to include in your CONFIG.SYS. When DOS opens a file, it keeps certain information in memory to be able to quickly access the file. This information is called a file handle. During bootup, memory is put aside for these file handles so a limit is placed on the number of files that can be open at one time. The default is eight which may seem adequate since programs normally close files when they are done allowing the file handles to be reused. However, eight is often not adequate. DOS uses four of the handles itself for "files" like con and prn. Thus there are four available for your programs. Some resident programs leave files open and even the ones that don't, may need to open a file for an initial access at the same time that an application program have several files open. Database programs often have separate index and data files and typically may want to have more than four open files (as an aside, the SIMS package used by many schools, may open as many as 50 files simultaneously!). If DOS is asked to open a file and a handle is not available, DOS issues an error message and the running program may even abort. I strongly recommend that you place the line FILES=20 in your CONFIG.SYS file. Indeed since the cost of increasing files is less than 40 bytes per handle, you could even use a number larger than 20.

BUFFERS

You may have heard of disc caching. As you've noticed, disc access is very slow and even a hard disc has access times 100 fold greater than RAM access times. Disc caching sets aside some RAM to keep a copy of the most recently accessed disc information so, for example, if a database is continually accessing a disc, the first time the disc is really read but the next time the copy in cache memory will be read instead. This is not the place to discuss the pros and cons of commercial disc caching software but you should know that DOS comes with some free rudimentary disc caching included. It keeps N buffers of 512 bytes each with the copies of the last N disc sectors accessed. By default N is only two. You should certainly make this number larger by including the line BUFFERS=N in your CONFIG.SYS where recommended values of N are between 10 and 25.

The issue of precisely how many buffers to take is not an easy one. Increasing the number of files handles has little effect on memory or efficiency so you can freely make files=99 if the mood strikes you. This is not so with buffers. Each buffer takes .5K of RAM so buffers add up. Moreover at some point it will take DOS longer to check through all its buffers looking to see if a file is there than it would take it to access it directly. I've seen the number 25 given as a dividing line but I would like to do some tests to check this out. I can only say that I've settled on buffers=20 myself and that with a floppy based system, you should take a higher figure than you might with a hard disc.

Increasing your environment

DOS sets up a special section of memory called the environment which has a default size of 160 bytes. This area must hold your path, your prompt, the place that COMMAND.COM can be found and various other strings. Programs can communicate with you by asking you to place information in the environment with the SET command. In addition you can keep global variables in the environment to pass between BATch files. If you attempt to place more there than it has room for you'll get a message "Out of environment space". With DOS 3.1 and later there is a CONFIG.SYS command allowing you to increase the amount of space reserved for your environment. The syntax is shell=C:\command.com /P /E:nnn where n is the number of bytes you want to set aside for the environment. For DOS 3.1 nnn represents the number of 16 byte paragraphs you want to set aside. Obviously with a floppy based system, replace C: by A:. Notice that this is not possible with a network station; the shell is NETLINK, not COMMAND and RM have designed this to set a sufficiently large environment space (at least they might have done so now!) If you do run out of environment space then one way to economise is not to have a very long path statement or, perhaps, to reduce the length of the names of environment variables. I have one which tells batch files whether the PostScript header has been downloaded; it could be called postscriptheaderdownloaded; but it makes more sense to call it pshdl!

Miscellaneous CONFIG.SYS commands

There are some other commands that can go in your CONFIG.SYS:

You can turn BREAK ON that is have the operating system check for control C more often than just during disc I/O. This slows down certain processing but gives you more safety from certain kinds of dead ends. The syntax is a line saying BREAK=ON Unlike any other CONFIG.SYS command, this one can also be issued from the DOS command line or in your AUTOEXEC.BAT file.

In addition to file handles, DOS has something call file control blocks which in DOS 3.x can be changed by an FCBS command. These are needed only if you have a network; the setup as shipped by RM should not be changed unless you know what you are doing! (FCBs tend to only be used by older applications).

DOS 3.2 and greater has a STACK command. This was introduced to help with some problems caused by interrupts occurring during interrupt handler routines; leave it alone!

DOS 3.1 and later allows you to use the SUBST command to assign drive letters to directories. Adding the line LASTDRIVE = ? where ? is a letter and then you can assign any drive up to and including that letter. Even a last drive=z only takes about 1K of RAM.

There is a COUNTRY command to control things like the time format. The default is USA. (Note that on the PC186 this is not needed; the default is the UK).

One final remark about your CONFIG.SYS. The order of the commands is irrelevant except to the extent that certain device drivers like to be loaded before others.

What should your AUTOEXEC.BAT contain?
An AUTOEXEC.BAT file typically sets the path to point to appropriate directories, sets the prompt to a suitable one, sets the date and time if necessary and, perhaps, loads the program with which you normally start;

```
ECHO OFF
CLS
PATH C:\DOS;C:\WINDOWS
PROMPT $P$G
DATE
TIME
WIN
```

Your AUTOEXEC.BAT can contain some of the following:

a VERIFY ON command. This slows down copying because DOS checks that the copy at least has consistent CRCs; this is not the same as comparing after copying but it is a fairly good check. Only several compensating errors could pass this test after an incorrect copy.

set a PROMPT. At a minimum use prompt=pg (see hints and tips for more on this).

set a PATH. If possible, keep your path short since every time you type in a bad command, DOS will have to read every directory in the path before responding "Bad command or filename". Also try to list the path in the order of how many times you expect to access a given directory. That is place the directories you call most often early in your path. If you have a RAM disc, place its directories first in the path. If you have a relatively large RAM disc, think about copying your BATch file directory and the programs you call often to that RAM disc and place that RAM disc first in your path.

If you have a large RAM disc, consider copying COMMAND.COM to it and placing the command SET comspec=D:\command.com in your AUTOEXEC.BAT (assuming D: is your RAM disc). Even without a large RAM disc, it is worthwhile to do this on a floppy based system. What the command does is tell DOS to look there when it needs to reload COMMAND.COM (large programs will overwrite a part of it and when they exit, DOS will try to reload COMMAND.COM. With the above command, you'll no longer get "Place a disc with command.com in drive A: and hit any key to continue".)

Be sure to include the DATE and TIME commands unless yourt computer has a clock (on a PC186 with internal serial piconet the date and time is set automatically; if you have the IBM utility board and include the line DEVICE=CLOCK.SYS in CONFIG.SYS then this also sets the date and time. All M-series machines have a built in clock).

There's a lot of useful information in here but beware! It is possible to create batch files and config.sys files which will prevent your computer from booting. It's best to experiment with a floppy until you are happy and then change the files on the hard disc. If this is not possible then make a DOS boot floppy and copy the AUTOEXEC.BAT and CONFIG.SYS files from your hard disc onto this:

```
COPY C:\AUTOEXEC.BAT A:\AUTOEXEC.SAV
COPY C:\CONFIG.SYS A:\CONFIG.SAV
```

Then, if something goes wrong, boot from the floppy and, at the A> prompt type in:

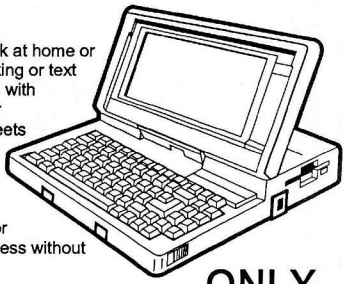
```
COPY A:\AUTOEXEC.SAV C:\AUTOEXEC.BAT
COPY A:\CONFIG.SAV C:\CONFIG.SYS
```

and reboot your machine to get it back to its previous state. If you are working on a network then create a special config.sys file for your station. If the file is called CONFIG.015 in either NETWORK\NETPC for a PC186 or \NETWORK\NETX for an M-series machine, then it will only be read by station 15 (or whatever number you use). Put the AUTOEXEC.BAT file in the directory of a secure user, specially set up for the purpose, and then logging on as that user at that station will test the files.

 © RM User Group 1991

The Educational NoteBook

ENB200



Introducing the ENB200 Educational NoteBook, the ideal machine for work at home or school. Lightweight, sturdy and reliable, the ENB200 is not just a note taking or text processing machine. It can run industry standard applications and comes with a powerful integrated package producing files suitable for transfer to other programs including all popular databases, wordprocessors and spreadsheets on PC's, Nimbus or Archimedes micros. It also includes ThinkSheet, a powerful organiser program ideal for planning projects, organising notes for essays and managing your time.

The ENB200 allows students and teachers to complete their schoolwork or homework at any location. It provides a low cost solution to keyboard access without expensive cabling and can be used on the smallest desk space.

ONLY £449

All Educational NoteBooks are backed by specialist educational suppliers LTS and Fisher Marriott and carry a full one year guarantee. Personal purchase scheme available for teachers.

Processor: 80C88, 8MHz XT compatible

Memory: 640k user RAM , 16k video RAM, 16k BIOS monitor ROM. Full PC compatibility.

Discs/Data Transfer: 2 x 720k slim drives for data transfer to Nimbus 186, M series, PC's and Archimedes (via PC-Access or similar) Note: 1.44 Mb discs cannot be read by Nimbus 186 or Archimedes micros and can cause problems for many students and home users with standard PC's, two 720k drives give the same storage and greater flexibility and cost saving on media. 720k discs can be read by 1.44Mb drives. Makes data transfer and file copying easier for students.

Screen Display: 10.5" supertwist LCD. High contrast, nonglare. 600 x 200 CGA. Software selectable display modes. Switchable inverse video for maximum legibility. Adjustable contrast. Wide viewing angle.

Keyboard: 81 keys, fullstroke 'professional feel'. Compatible with full 101 key and 102 key emulation. 10 programmable function keys. Retractable keyboard legs. Indicator lights for Power/Battery/Charge (audible low power warning), CAPS lock, Fn, Drives A: and B: Contrast indicator.

Ports/Connections: Centronics parallel port for printer/external hard drive, full RS232 serial port for printer/communications/data capture/mouse, RGB colour video for external colour monitor.

Power: Removable rechargeable NiCad battery pack, up to 3 hours use, recharge 2 hours. Mains AC power adapter/charger included. Simultaneous charge and use possible. Power and battery life display. Power saving auto close down of screen display option.

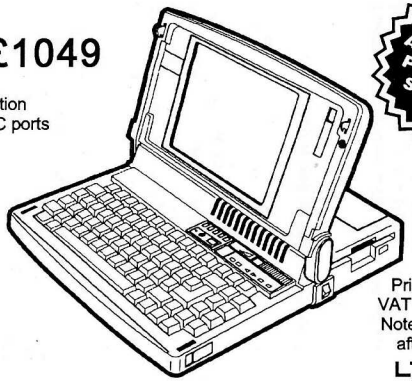
Bundled Software: DRDOS 5 (MSDOS compatible with many extra utilities), Forte integrated package - text and graphics wordprocessors, spellchecker, spreadsheet, database, report writer, graphics, printer driver editor, font editor. ThinkSheet organiser.

Price: £449 + VAT including one year warranty.

Options: External hard drive £339, second battery £20, supplementary multiple charger £49, carry cases £TBA.

ENB310V

£1049



BUILT-IN ANTI-THEFT PC ALARM SYSTEM

- ✔ 80286 16MHz CPU
- ✔ 40Mb hard disc, 3.5" 1.44Mb floppy
- ✔ 1Mb RAM expandable to 5M
- ✔ EMS 4.0, shadow RAM and page mode operation
- ✔ Centronics, external VGA monitor, 2 x RS232C ports
- ✔ removable and rechargeable batteries
- ✔ charger/mains adapter
- ✔ lightweight 7.5 lbs, 13" x 12" x 2"
- ✔ system software and battery check utility
- ✔ nonglare VGA triple supertwist LCD display
- ✔ unique anti-theft / anti-tamper alarm system
- ✔ bundled integrated software and ThinkSheet

Prices exclude VAT and carriage. Note: VAT 17.5% after 1st April

The Educational NoteBook Company
℅ LTS Ltd, Haydon House,
Alcester Road, Studley, Warks B80 7AN
Tel 0386 792617 FAX 0386 793147

LTS/F-M

ANSI Escape Sequences

Scot Giles

In a reply to a letter in volume 5:4 there was a comment about using Escape sequences to change colours etc and a request for an article. This is an attempt to provide the wanted information.

Most people know that the keyboard can type 96 different characters (the letters and numbers etc). It can also produce special characters, like the accented characters such as üâç etc. These are produced by pressing the ALT key and then typing the number on the numeric keypad. It is also possible to produce non-printing characters; CTRL G is the one which makes the beep, for example. The escape character is a control character (code number 27) which does very little on its own but is normally used to introduce a sequence of other characters.

One way of using escape sequences is to include them in batch files (as ECHO commands) or as part of the prompt command. The colours are only one of the features of the escape sequences; perhaps a more useful idea is to redefine the keys, particularly the function keys.

KEYBOARD REASSIGNMENT WITH ANSI

Before we get to specific ways to send control codes to the ANSI driver, you must first know what those codes mean. For the function keys the codes are listed on the chart below. Each function key is assigned an "extended function code" which DOS will use to recognize that a function key has been pressed and in what shifted mode, if any. Each number is expressed as a 0 followed by a semi-colon, then the number from the chart below.

KEY	NORMAL	SHIFT	CONTROL	ALT
F1	59	84	94	104
F2	60	85	95	105
F3	61	86	96	106
F4	62	87	97	107
F5	63	88	98	108
F6	64	89	99	109
F7	65	90	100	110
F8	66	91	101	111
F9	67	92	102	112
F10	68	93	103	113

Accordingly, the way to designate the F5 key would be 0;63 while the F10 key would be designated by 0;68 or 0;113 if shifted with the ALT key.

 © RM User Group 1991

To change one key to have the meaning of another, enter:

ESC [#;#p

where the first # is the ASCII value of the key being changed and the second # is the ASCII value of the new definition. For example, "A" has the ASCII value of 65 and "Q" has the value of 81. So:

ESC [65;81p

will result in "A" being redefined as "Q." It is also possible to redefine a key to have the meaning of a string of characters. This is done by enclosing the string in quotes. So:

ESC [65;"Hi there"p

would change the "A" key to have the meaning of "Hi there." If the first value for the first # is a 0 however, DOS knows that what is being changed is not an ASCII value but the meaning of an extended function code. So if you were to enter:

ESC [0;68;"Hi there"p

DOS would know to change the meaning of the function key (in this case F10) to the sting enclosed in quotes. This is the key to redefining your function keys to perform much used commands: like DIR, CHKDSK, COPY *.* B: etc. or to load programs from disk.

There is a final trick here. If you end the escape command sequence with the characters ";13p" instead of just "p" the command will self-execute, just as if you pressed the [enter] key.

The documentation tells the user to preface each command by an ESC command, and I have represented this in the above paragraphs by writing the characters "ESC" at the start of each control code sequence mentioned. Most users assume that this means to press the ESC key on the keyboard when entering the commands. Not so. To get the Escape Sequence to the ANSI driver you must enter it using a prompt command or use a text editor which can handle ESCape. For example to configure the F1 key (extended function code 59) to have the meaning in DOS of "autoexec" with an [enter] command at the end of it you cannot type:

ESC [0;59;"autoexec";13p

as the ESC will not be recognized by DOS as an escape sequence.

What DOS will recognize as an escape sequence is the characters "$e" although this surely looks strange at first. Users familiar with the PROMPT

command will notice that the "$" character is what the PROMPT command uses as an escape sequence, and that is precisely how we will get the redefinition to be recognized by DOS. If you enter the following command:

PROMPT $e[0;59;"autoexec";13p

and then press F1 you will see that it works perfectly. This is not the best way of doing it because you lose your normal prompt! If you use Steed then you can edit a file and include the ESC code in an ECHO command. Type STEED KEYON.BAT to load STEED and create a new file called KEYON.BAT. Steed will warn you that the file is new. Type in the following; press the ESC key where the text shows $ (Steed shows a $ sign on screen).

```
echo off
echo $[0;59;"WORD";13p
echo $[0;60;"WIN";13p
echo $[0;61;"PAINTSPA";13p
echo $[0;62;"CAXTON";13p
echo $[0;63;"BBCLOAD";13p
echo $[0;64;"BASIC";13p
echo $[0;65;"EXIT";13p
echo $[0;66;"DIR /W"p
echo $[0;67;"FORMAT A:";13p
echo $[0;68;"WRITE";13p
cls
```

When you have typed this, press F9 and then type EX ESC ESC (press the ESC key twice; again it shows as the $ sign). This will program the keys F1 to F10 to load the programs whose names are shown. Type KEYON and then test the action of each function key.

You would also want to create another file called KEYOFF.BAT which resets the function key definitions to DOS normal. The format would be:

```
echo on
echo $[0;59;0;59p
echo $[0;60;0;60p
echo $[0;61;0;61p
echo $[0;62;0;62p
echo $[0;63;0;63p
echo $[0;64;0;64p
echo $[0;65;0;65p
echo $[0;66;0;66p
echo $[0;67;0;67p
echo $[0;68;0;68p
cls
```

Again, you can create this with Steed; type STEED KEYOFF.BAT to load Steed and create the new file. When you have typed it in press F9 then type EX and press ESC twice.

 © RM User Group 1991

(Incidentally, if you get stuck in Steed, pressing F9, typing AC and pressing ESC twice will abandon the file on which you are working).

Now to colours and the rest.

Extended Screen Control
Notes:

1. The sequences can be issued through any DOS function call that can write to the standard output device.

2. Default values are used if null or 0 parameters are used.

Esc[#;#H	Cursor Positioned @ line;column (default is 1)		
Esc[#;#f	"	"	(default is 1)
Esc[#A	"	Up # lines (default is 1)	
Esc[#B	"	Down # (default is 1)	
Esc[#C	" Forward # columns		(default is 1)
Esc[#D	"	Backward #	" (default is 1)
Esc[s	Save Cursor Position		
Esc[u	Restore Cursor Position		
Esc[#;#R	Cursor Position Report reports line;column		
Esc[6n	Device Status Report outputs Esc[#;#R		
Esc[2J	Erase Display & cursor home (1;1)		
Esc[k	Erase Line from cursor to eol		
Esc[#;...;#m	Set Graphics Rendition		

attribute	foreground	background
0 all atr off (wh on bk)	30 black	40 black
1 hi intensity	31 red	41 red
4 underline (mono only)	32 green	42 green
5 blink	33 yellow	43 yellow
7 reverse video	34 blue	44 blue
8 invisible	35 magenta	45 magenta
	36 cyan	46 cyan
	37 white	47 white

Esc[=#h	Set Mode	(default is 0)	
Esc[=#I	Reset Mode	(default is 0)	
	Black & White	Color	
0	40x25	1	40x25
2	80x25	3	80x25
4	320x200	5	320x200
6	640x200		

 © RM User Group 1991

Esc[=7h	Word-wrap	on
Esc[?7h	"	on
Esc[=7l	"	off
Esc[?7l	"	off

Extended Keyboard (Reassignment)
{} = optional
If first # is 0 (NUL) then first & second code make up an extended ASCII re-definition else first # is the (dec) ASCII code being mapped.

Esc[{#;}{"string";}.....#p (any combination of decimal
Esc[{#;}{"string";}..."string";p numbers and strings)

Create this file (call it TEST.BAT) using Steed then type TEST at the prompt. This shows the use of the colour changes. You can experiment with the colours if you wish.

```
echo off
echo $[1hThis is 40 column mode
echo $[30;41mblack text red background
echo $[31;42mred text green background
echo $[32;43mgreen text brown background
echo $[33;44mbrown text blue background
echo $[34;45mblue text magenta background
echo $[35;46mmagenta text cyan background
echo $[36;47mcyan text white background
echo $[37;40mwhite text black background
pause
echo $[3hThis is back to 80 column
```

The PROMPT command
The command takes the form PROMPT {meta-string}{text}. There can be more than one meta-string and more than one set of text.

defined meta-strings:

(nul)	normal prompt (ng)	$n	Default drive letter
$b	"|" character	$p	current dir & default drive
$d	date	$q	"=" character
$e	ESCape character		$t time
$g	">" character	$v	DOS version number
$h	backspace and erase		$$"$" character
$l	"<"	$-	ASCII CR LF sequence

(Note that the $e meta-string allows us to use any of the following extended screen/keyboard control sequences.)

In other words, PROMPT The date is dg will give

The date is Thu 4-07-1991> as a prompt ($d gives the date, $g the > sign)

You can combine the meta strings with some of the other escape sequences to give a very useful prompt:

(this could be confusing! The $ signs before a [must be the ESC key; the other $ signs are actual dollar signs i.e shift 4)

```
ECHO OFF
CLS
PROMPT $[s$[H$[k$[1;33;44m$D$H$H$H$B$T$H$H$H$B$p$[u$[0;1;33m$n$g$[0m
```

RESULTS: The prompt will show up in the following manner on the screen:

```
Fri  12-07¦18:30¦C:\DOS\UTIL
```

1. current day of the week and date (month and day only)
2. current time (updated only when the screen is refreshed)
3. current logged-in directory

always located at line 1, column 1 of the screen. In addition, the current drive will be highlighted and shown as the regular DOS prompt at its regular position as: C>

DETAILED EXPLANATION OF THE PROMPT

```
$[s$[H$[K$[1;33;44m$D$H$H$H$B$T$H$H$H$H$H$B$P$[u$[0;1;33m$n$g$[0m

1  2  3  4         5 6     7 8 9          101112 13       141516
```

1 save cursor position
2 move cursor home
3 clear current line
4 set colour as bright yellow on blue
5 print the date
6 backspace 4 times to erase the year
7 print a vertical bar
8 print the time
9 erase the seconds and hundredths
10 print a vertical bar
11 print the directory
12 move the cursor back where it was before
13 reset the colours to yellow

 © RM User Group 1991

14 print the drive
15 print a >
16 set the default colours (white on black)

If this sounds complicated then don't worry! There is really very little need to get involved with complicated settings for the prompt but they can be fun.

One way of getting to see what ANSI sequences can do is to use a package like The Draw. This is a shareware program (available from the Bulletin Board and, I think, from the software librarian) which allows you to design screens more or less as if you were using a painting package. It then works out the corresponding ESC codes and writes them to a file which you can then examine, if you wish.

 © RM User Group 1991

Microsoft Works

Stephen Rochford

Works is an integrated package containing a wordprocessor, spreadsheet with graphics, database and communications application. It will run on any Nimbus computer including a PC186 provided that it has 1Mb of memory so that it can run SETPC (remember to use SETPC IBM /C /P to set up the mouse). It has the big advantage of being very cheap; £69 for one copy, £400 for a licence for 10 users, and yet sufficiently sophisticated to meet most users needs.

The word processor is easy to use; if you are familiar with Word then you may have some difficulties starting but it shouldn't take too long. The big difference is that the menus drop down from the top; they are similar to Windows menus but with a few differences which shouldn't cause too much confusion (print, for example, is not on the file menu but has it has its own menu it isn't hard too find). Incidentally, the print menu contains a preview feature; this lets you see the page in miniature before you actually print it. This is excellent and gives you a good feel for the way your document will look before you print it.

You can select text in exactly the same way as in Word using the mouse but the cursor keys method is different and, perhaps, slightly easier; just press SHIFT and move the cursor. Alternatively, you can press F8 to go into Extend mode, exactly like F6 in Word but a useful technique because it is also used in other areas of the package. Having selected text you can make the changes to it that you would expect; change the formatting, delete it, copy it and so on. The fonts available are those appropriate to the printer. They are not shown on screen as you type (which means that the package can work at a reasonable speed without needing a very powerful computer) but they are shown reasonably well in print preview mode. Pagination takes place in the background, putting the familiar chevrons (») to mark the page breaks.

Character and paragraph formatting are more than adequate; I find that users tend to get confused if too many options are offered. At install time you can choose one or more printers from a huge range and support seems to be good. Works saves word processing files in its own format but it can read and write other formats, including plain ASCII and Word. This means that it can co-exist with Word in, for example, a school using both packages.

 © RM User Group 1991

The spreadsheet is 4096 rows deep by many thousand wide; I can't imagine ever producing a sheet that big and I'm sure you'd run out of memory long before you got near that size! It has a good range of functions and works nicely with the mouse. The integration of the package means that it is extremely easy to copy data from the spreadsheet into a report written with the word processor. Producing charts is fairly easy; type the data you want to chart, highlight it and then choose View New Chart. With the chart on the screen you cannot make changes to it; you have to go back to the spreadsheet screen and then choose the Format or other menu as appropriate to make the changes. This isn't a major problem. The package cannot produce some of the flash charts which programs like Excel 3 or Lotus 1-2-3 for Windows now boast but I sometimes wonder if the pretty presentation serves more to hide the data rather than enhance it. I know that children tend to choose the fanciest chart, rather than the one which most clearly shows their data. Restricting the choices means that they are more likely to make a better choice.

You can't paste a chart into the text, as you would using, say, Excel and Word for Windows, but you can use Edit Insert chart. This puts the file name of the chart as a marker on the screen. When you then go to Print Preview the text is shown with the chart displayed properly.

Works can read Lotus 1-2-3 files although it doesn't recognise all of the functions used by 1-2-3. It can also read in comma or tab delimited files which means that it can probably import data from most other applications; you are unlikely to lose all the data you have so carefully prepared.

The database is a "flat file". This means that it is a simple set of records and it is not possible to link one file to another as you might using Superbase or DataEase. It is, however, much easier to use. You can "paint" a form on screen very easily and define the fields as you go. The package can display the file in form view or list view (one record on screen at a time or a long list, similar in appearance to a spreadsheet). Reports are easy to set up but can be quite sophisticated; certainly more so than Grass or Quest. Statistics can be generated within a report quite easily. Data from the database is very easily merged into the word processor to give you a very good mail merge capability; this is another way to generate reports from the data if the options available are not sufficient.

 © RM User Group 1991

Works has a communications section. I've not been able to try this out as I don't have a modem handy but from the description it seems adequate for simple work. It allows simple text transfers (so you can, for example, read messages etc. on bulletin boards) and it can also transmit or receive files using the Xmodem protocol. It assumes you have a Hayes compatible modem and I can find no way of changing this so that you can put in the appropriate settings for the modems which went into so many schools. This may not matter; many packages will let you make the connection manually and then take over and I think this is the case with Works.

There is an accessories section, including an alarm clock, a calculator (easy to use but only four functions and you can paste the results into your work), a phone dialler (I've no idea whether it works with UK phones) and a simple file management system. The package supports the use of macros in all its sections. I've not really got to grips with macros in any packages as yet but I'm convinced that they must be a good thing because every package nowadays has them for "power users". I'm obviously just not a power user!

So far, so good. What are the problems? I'm not a particularly fast typist but I can beat Works; it sits and thinks for a while and then a whole string of text appears. It's quite disconcerting because I keep thinking that it's not going to catch up! Redrawing the screen is also fairly slow, for example, when you swap between windows for the spreadsheet and the wordprocessor. The spelling checker is quirky; it does not recognise the word "recognise", for example (it wants a z instead of an s) but fairly quick. The method of copying text is odd; you don't cut it and paste it you copy it and copy it again. It falls down at the point of installation because the discs are not labelled 1-6 but with names and you have to work out which one has the setup program on it. Once it is found, however, the process is straightforward. The manual seems comprehensive but is a reference book rather than a guide; the tutorial is supposed to be your introduction.

The big advantages are that it does more or less everything that you might want from a word processor, spreadsheet and database. I can recommend it for school use and I am sure that it is more than adequate for small businesses. The education pack (which seems to be that normal pack with a sticker on the front) comes with a leaflet giving some ideas for use in schools. There is an excellent tutorial although it may seem childish if you do have some experience. It is, however, possible to start to only work through the lessons in which you are interested. You can run Works from a floppy disc, and save work on a separate data disc. This makes it possible to use Works on just about any machine, unlike Windows which must have a hard disc.

Verdict? In a word, recommended.

 © RM User Group 1991

Hints and Tips

If you have two printers on a server then they will normally be offered to users as LPT1 and LPT2. Most applications assume that the printer is LPT1; some allow you to change this before you print. For example, PaintSPA and NewSPAper have a section where you can choose the device you want to use for printing. Some packages don't; Word 3 is a classic example. Although the Print Options section seems to allow you to choose a device it doesn't seemt to work!

The answer is to make sure that the appropriate printer is chosen as LPT1 before the application loads. Suppose, for example, that you have a laser printer (offered as printer 2 on the server) and a dot matrix printer (offered as printer 1). You will already have batch files called PRINTER1 and PRINTER2 on the network; you can just copy the appropriate line into the batch file of the particular program. This means that if you want Windows users to always use the laser printer then you just put:

```
USE LPT1 /D > NUL
USE LPT1 \\%SERVER%\%PR2% > NUL
```

near the start of the batch file.

The use /d command breaks the connection of LPT1 to the network and then the next line makes a new connection to printer 2 on the server. Note that by using the variables (the bits in % signs) you don't need to know the name of either the printer or the server. It's a good idea to put

```
REUSE LPT1 \\%SERVER%\%PR1%
```

at the end of the batch file so that the default printer is reset. The REUSE command breaks the connection for LPT1 and makes a new connection in one go; you can use it here because you are fairly certain that a network printer already exists for LPT1 (because you made it at the start of the file!) At the beginning of the file you don't know that there is a network printer so you disconnect it just in case and then connect it; the >NUL section stops any error messages from appearing.

Caxton Press may not work on a PC286 on the network; apparently the fault is very easy to correct. Find the line in the batch file which sets the path - it'll be something like

```
PATH P:\CAXPRESS;%dp%
```

and delete the %dp% to leave just

```
PATH P:\CAXPRESS
```

(If you don't know about Caxton Press then it is a simple newspaper program which gives good results. It is available from Newman Software.

When PageMaker starts it reads in the filters specified in WIN.INI; if you don't use all the filters then you can speed things up slightly by deleting the references to the unwanted filters. You can then delete the files from disc, recovering some space.

There are lots of things on a standard server that you may never need; this has been said before but bears repeating. If you only have PC186 stations then you can delete all the applications from M:\XPUBLIC (but do keep the master discs just in case you buy some M series machines!). If you only have M series machines then you can delete the PC186 specific applications such as Windows for the PC186 and BBC Basic; take care, however, because some files are in the M:\PUBLIC\WINDOWS directory but are needed by M series machines. If a file appears in both PUBLIC and XPUBLIC then you don't need the PUBLIC one. If there is only one copy then you must keep that.

When things stop working the first thing to do is to think logically about what's gone wrong. For example; suppose that no stations will boot. If there is no work to be saved then stop and restart the server. This may well cure the fault (I've had the server hang because an electrician flicked a switch, disprupting the power for a very short time).

A frequent cause of problems is cable faults - it is all too easy for someone to disconnect a cable either maliciously or accidentally. If possible, have two spare terminators handy. Put one on one side of the T piece on the server and then follow the cable to the first station. Put the second T piece on the other side of this. You now have a one station network. If this doesn't boot at least you've narrowed down the fault to the server, one station, two T pieces and terminators and a length of cable. Check the simple things first. Try two other T pieces and terminators. (I once spent hours looking for a fault only to find that I had a faulty terminator!) Check the cable by swapping it for another piece. Try another station. If none of this works then you probably have a fault on the server.

Run CHKDSK /F on the server and run XVERIFY. If XVERIFY finds serious errors then you need to reformat the hard disc and restore everything; but this is a very rare fault.

Restore the \MGR and \NETWORK directories from your most recent backup and try again; make sure that you are restoring the hidden files MSDOS.SYS, IO.SYS, IBMBIO.COM and IBMDOS.COM. If the fault persists try reformatting the whole disc and restoring from the master discs.

I have seen a network which was set up with the cable as a T shape (rather than the straight run). This worked for ages (although rather slowly) and then one day just stopped. I don't know why it worked in the first place but it did. Once it had given up the ghost, however, it would not restart. Putting the cable in a straight line got it all working again and this is worth bearing in mind if you encounter a strange fault.

If your network starts but gives "Failed to connect" messages then this is indicating that the network software on the station is timing out before it makes the connection. This can happen if a lot of people reset their machines and a new batch all try to log on at the same time. You have two solutions; the simplest is to destroy anybody who resets the machine with CTRL ALT DEL. The other route is to speed up the server. Adding extra memory for use as cache will achieve this.

Word for Windows allows a considerable degree of customisation and stores this setup in the file WINWORD.INI. If you get a setup which you don't like then delete this file and Winword will use its own defaults. If you want all users to get the same startup then you could make sure that WINWORD.INI is copied to their own directories at start up. This has the disadvantage that this file also has the name of the user stored in it (used when you save the document file) but if you're not bothered about this then it's an easy solution.

The other way to do it is to create a macro which runs when Word starts up. Choose Macro Record from the menu and give it the name AUTOEXEC. Make all the changes to the settings that you want and then stop recording. Save the changes when you quit. They are stored in the file NORMAL.DOT. Make sure that this is copied into each user's directory when they first start Word for Windows and then each time the program is run it will reset the defaults. This has the advantage that a user who gets confused can just quit and restart and the setup will be restored.

Word for Windows does not allow the use of a field called TITLE when mail merging. Or, rather, it does but it prints the title of the document rather than Mr or Mrs or whatever you expected!

Stop Press!

I had written the editorial and sorted out the pages for the front of the magazine when, at last, a set of information from Lotus arrived. I've perhaps been unfair to them in commenting on their pricing. They are now offering 65% discounts on all products to educational users and 75% to users buying more than 25 copies at a time. Some example prices:

Lotus 1-2-3 release 2.2 is £138.25 for the standard edition or £192.50 for the server edition with £110.25 for each network node.

Ami Pro version 1.2 is £148.75 for the standard or server edition and £70 for each node.

Lotus also sell an integrated package called Lotus Works. This costs £50.75 (or £50 if you "cross-grade" from Microsoft Works, PFS:first choice, Ability or Ability Plus.)

Lotus Works seems to have the same sort of facilities as Microsoft Works. I haven't seen it but from the literature I think that its word processor is about the same (but it can't import or export the same range of formats; this could be a severe limitation). Its spreadsheet looks perfectly adequate and it has a fair range of graphs.

The database looks good; it can read and write .DBF files (from dBASE III, for example) which means that data transfer to and from other packages should be fairly straightforward.

Its communications section seems better than that from Microsoft Works (but without trying either it's hard to say. If you don't use electronic communications very often it hardly matters, anyway!)

As a one off, it's cheaper than Microsoft Works but if you are buying many copies then it's more expensive. Further details of all Lotus products from Lotus Development at Lotus Park, The Causeway, Staines, Middlesex, TW18 3AG; Tel: 0784 455445

The Discovery of the Mathematics Textbook

Michael Cornelius

February, 2003. A wet Friday afternoon:
Form 2B are seated at their individual computers, tapping keys, running mathematics instruction programs. They look bored. There have been many lessons just like this one with nothing to do except press keys and watch a display appear on the screen. The class teacher, Mr Conic, is turning out a cupboard. He is nearing retirement (30 next birthday - compulsory retirement at 30 for all teachers was introduced in 1996) and is tidying up prior to his departure. Among all the discs and broken computers he comes across an old mathematucs textbook published some 35 years ago. As he browses through the book, Johm a bright pupil, comes out to tell hom that his computer has just blown up nad could he pleas have another one. John notices the book, is interested and asks if he can borrow it for the weekend

The following Monday
As 2B come in to sit reluctantly at their machines, John rushes excitedly to Mr Conic. "Sir, can I use the book today instead of my computer, it's good". Mr Conic hesitantly agrees and a search ensues to find paper and pencil when it is realised that John will not be able to work with his keyboard and screen. The other children are inquisitive and a little bit jealous.

Tuesday:
Mr Conic is greeted by a chorus of requests, "Please Sir, can we have a go with the book?" In the face of mounting pupil pressure he deicdes to allow two children at a time to share the book and the paper and pencil. The children have never before shown such interest and excitement.

2 weeks later:
The headteacher appears in Mr Conic's room. He has received numerous complaints from parents about children wasting their time with a book in their mathematics lessons but he comes away impressed by the childrens' enthusiasm for the textbook and indeed even promises to ask the PTA for money to buy more pencils

1 month later:
The news of Mr Conic's bold, innovative teaching has now travelled far. The local adviser has been in. Other schools in the area have tried to dig out old texts and to follow Mr Conic's lead. Today a team of HMIs visits the school, they depart impressed. Mr Conics is asked to consider remaining beyond the normal retiring age and to lecture up and down the country on the use of the textbook.

 © RM User Group 1991

6 months later:
The DES announces that it would like to see a textbook in every school and that it will pay half the cost of a book if the school will raise the money for the other half. Research projects, to monitor the use of textbooks are announced at two of the remaining three universities in the United Kingdom.

1 year later:
With only one book in a classroom, teachers are finding problems in organising pupils. It is hard for more than two pupils at a time to use the book. In classrooms all over the country pupils eagerly await their turn to use a book.

Special in-service courses for teachers are established. Some schools claim success in using whole sets of books with all pupils working on the same topic at the same time. Children observed *discussing* their work and abandoning their machines. Research findings are inconclusive. Professor Conic returns from a highly successful American lecture tour.

5 years later:
Most schools are now using textbooks. Cupboards are full of old computers. On a wet Friday afternoon in February, Form 2B sit with bored looks on their faces as they struggle through monotonous exercises in their books. The only prospect of relief is to obtain permission to sharpen a pencil.

A major DES research project on the use of text books in the teaching of mathematics has just failed to reach any definite conlcusions. Concern about the state of school mathematics has led to the setting up of a Committee of Enquiry into the teaching of mathematics under the chairmanship of Dr Croftcock - Professor Conic is to be a member of the committee.

10 years later:
Mr Conic, son of Professor Conic, is teaching 2B. The pupils are all working wearily at their textbooks. Mr Conic is turning out a cupboard. Just as he unearths an old computer, John a bright pupil, comes out to tell him that his textbook has disintegrated.

Reprinted from Mathematics in School, September 1983. I found this article while I was tidying out a cupboard (but without John watching!) and thought it was quite amusing, and appropriate for the end of term. I think it also has a serious side, as well; most of you, like me, work with computers in schools. It is important that we recognise the value of all forms of learning so that the appropriate tool is used, rather than just going for the latest in the expectation that it will be the best.

 © RM User Group 1991

Writing for the Magazine

I welcome submissions for the magazine from anyone. You don't have to be a great writer to send something in; send a letter or a short tip for the Hints and Tips pages, everything is welcome.

This issue carries an article on using Windows Write; I think it would be very useful to people who have just got a system and don't really know what to do with it and I would welcome more such articles. If you feel that you can't write an article but know what you want to see then write and tell me; I can probably find someone else to write it. For example, do you want to see articles on using the other Windows applications (Cardfile, Paintbrush, Terminal etc)? Is there something about network management that you want to know? Let me know!

I'm still looking for more articles on using the Educational Software Library; RM have sold a lot of copies of it so many of you must be using it. What are you doing? How have you set things up? How do you make the software available to users? What setup do you have for your menus?

If you are writing for me then the ideal is to send me a disc produced using Word or Word for Windows but I can cope with any word processor that runs on a Nimbus (I think!). If you are using a 480z then I can take WordStar, Oxfordshire Write or plain text files and if what you are sending is short then a letter on good old fashioned paper is fine.

Finally, we pay for published articles at the rate of £5 per printed page (although all payments are at the Editor's discretion).

Advertising in the Magazine

Full and half page advertisements can be placed in the magazine and details can be obtained from the Advertising Manager. We also take classified ads and members may place free ads for surplus equipment in MicroMart.

Rates

Back Cover **£100** Inside Cover **£60** Full Page **£50** Half Page **£30**

Classified **£5/100 words**

These rates assume black-on-white, camera ready copy. Please avoid dot-matrix output. Typesetting is charged at cost and is additional to the above rates. Classified ads must be pre-paid; cheques payable to RM User Group

 © RM User Group 1991

Membership Form

Please use capitals

Mr/Mrs/Miss/Ms _____

Job title (if appropriate) _____

Address _____

_____

_____

Postcode _____

I enclose a cheque payable to RMUG/order for £15 (£20 for overseas members). If you are not enclosing a cheque then please send an official order, indicating clearly to whom the invoice should be sent.

In order to serve our members better we like to know something about them and what they do with their computers. Theinformation you give is confidential and we are registered as Data Users under the Data Protection Act.

Please fill in a number next to the computer names below; the first box is for standalone computers, the second, if present, is for networked machines.

☐ 480z	☐ PC186	☐ PC286	☐ PC386
☐ AX	☐ VX	☐ NB100	☐ NB200
☐ NB300	☐ BBC/Master	☐ Archimedes	☐ IBM

Please tick the areas in which you are interested.

☐ Word processing	☐ Spreadsheets	☐ Databases	☐ High Level Languages
☐ Education	☐ DTP	☐ Art/Graphics	☐ Low Level Languages
☐ Administration	☐ CAL	☐ CDT	☐ Communications
☐ Windows	☐ Other		

Please tick the best description of yourself or your institution

☐ Sole Trader	☐ Limited Co.	☐ Primary School	☐ Charity
☐ Middle School	☐ Secondary Sch	☐ 6th Form College	☐ FE College
☐ HE College	☐ Polytechnic	☐ University	☐ R&D
☐ Personal User	☐ Computer Centre	☐ Independent School	☐ Other

Please send your form to: **Stephen Rochford, RMUG Membership Secretary, George Stephenson Community High School, Southgate, Killingworth NE12 0SA.**
You may photocopy this form if you do not wish to cut your magazine.

 © RM User Group 1991

Committee Members 1991/1992

Chairman	Shaftesbury Hall
Les Watson	St Georges Place
	Cheltenham
	GL50 3PP 0242-532968
Secretary	Aston Drey 38 Marsh Road
John Williams	Wilmcote Stratford-Upon-Avon
	Warwickshire CV37 9XR..... 0789-269533
	South Warwickshire College of FE
	The Willows North Startford-Upon-Avon
	Warwickshire CV37 9QR 0789-266245
Treasurer	Aston Drey 38 Marsh Road
Helen Williams	Wilmcote Stratford-Upon-Avon
	Warwickshire CV37 9XR..... 0789-269533
	South Warwickshire College of FE
	The Willows North Startford-Upon-Avon
	Warwickshire CV37 9QR 0789-266245
Membership Secretary and Editor	
Stephen Rochford	Latymer Upper School
	King Street
	London W6 9LR..... 081-741 1851
	46 Ollgar Close
	Shepherds Bush
	London W12 0NG
Software Librarian	7 Wood Drive Stevenage
Sheila Maynard	Hertfordshire SG2 8PA 0438-354809
	Nobel School
	Mobbsbury Way Stevenage
	Hertfordshire SG2 0HS 0438-352467
Advertising Manager	Ashby Farms
Keith Ashby	The Buss Barn
	Fairfield Road Appledore ..... home 023-383 409
	Ashford Kent TN26 2DR..... work 023-383 378
Myfanwy Wallace	8 Cornwall Road Cheam
	Sutton Surrey SM2 6DR 081 661 6408
Ian Burgess	5 Polsted Road Catford
	London SE6 4YH 081-690 5427
	St Dunstan's College Stanstead Road
	Catford London SE6 4TY 081-690 1274

 © RM User Group 1991

MSM Micro System Maintenance Limited

15 Westmead Ind Est, Westlea,
Swindon, Wiltshire, SN5 7YS.
Tel: (0793) 616888

A TEAM TO BE TRUSTED

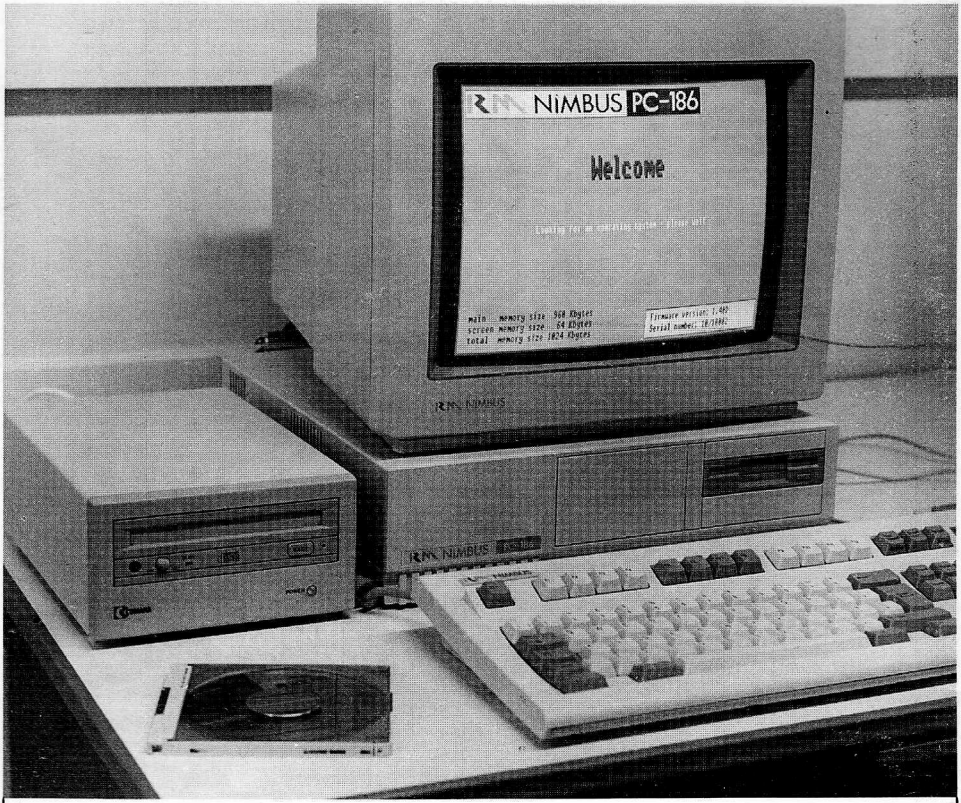
MSM are RML's authorised national service agents.

If your Nimbus, VX system, 380Z or 480Z needs attention, we'll fix it for you, and won't charge you the earth. If your responsible for keeping networks up and running, talk to us about a maintenance contract; our quotation will be a pleasant surprise.

We are the only company authorised to do RML warranty work, and we also carry out upgrades and modifications, either on-site or at one of our eight regional service centres.

We'll send you an information pack and/ or a quotation.

MSM Service Desk
C/o Research Machines Limited
Windrush Court, Blacklands Way, Abingdon, OX14 lRG.



Cumana announce

CD-ROM

for your Nimbus PC-186

Package includes:

- ★ **External CD-ROM drive**
- ★ **MS-DOS extensions software**
- ★ **PC-186 CD-ROM support software**
- ★ **CD-CADDY**
- ★ **Connector cable**

The CRD-432 connects to your existing RM-SASI or the optional Cumana Super-SASI interface. By choosing Cumana, you'll have a CD-ROM drive that not only accesses and reads reference databases quickly; but can also play any CD music disc. The price will surprise you as well . . . . **just £482 + VAT.**

CUMANA

Cumana Ltd.,
Pines Trading Estate, Broad Street,
Guildford, Surrey GU3 3BH

Tel: (0483) 503121
Telex: 859380
Fax: (0483) 503326